

WHAT IS CLAIMED:

50A' 1. Apparatus (for producing a molded pulp product from a fiber slurry comprising a dip tank containing a fiber slurry therein and having a liquid level, a platen, a porous mold carried by the platen, means for moving the platen and the mold carried thereby into the fiber slurry in a downward direction with the platen being disposed upwardly of the mold so that the mold is introduced through the liquid level into the fiber slurry, means for supplying a vacuum to the platen and to the mold while the mold is disposed in the fiber slurry to cause fibers in the fiber slurry to collect onto the mold to form a wet molded pulp product, means for moving the platen and the mold to move the mold upwardly out of the fiber slurry through the liquid level to permit water to drain from the mold and the wet pulp molded product and means for causing the wet molded pulp product to dry.

2. Apparatus as in Claim 1 further including means for inverting the platen and the mold after the mold has been removed from the fiber slurry so that the mold is facing upwardly with respect to the platen to facilitate the drainage of water from the mold and the wet molded pulp product.

3. Apparatus as in Claim 1 further including a dry chamber and means for advancing the wet molded pulp product into the dry chamber and means for supplying heated air to the dry chamber to facilitate drying of the wet molded pulp product.

4. Apparatus as in Claim 3 wherein said mold is a first mating mold and further comprising a second mating mold capable of being disposed in the dry chamber and means

for causing relative movement between the first mating mold and the second mating mold for causing the wet molded product to be formed with impressions from both the first and second mating molds, means for causing the wet molded product to be transferred to the second mating mold and to be carried by the second mating mold into the drying chamber, means forming an air-tight seal for the drying chamber after the wet molded product has been transferred into the drying chamber and means for supplying heated air to the dry chamber and to the wet molded product.

5. Apparatus as in Claim 4 wherein the drying chamber is formed so that the heated air must pass through the molded product before the heated air can exit from the drying chamber.

6. Apparatus as in Claim 3 further including means for supplying a vacuum to the wet molded product while the molded product is in the drying chamber.

7. Apparatus as in Claim 3 further including a framework, said dip tank being disposed in the framework and having an upwardly facing opening therein, a dry tank supported by the framework and overlying the opening in the dip tank and having a downwardly facing opening therein, means disposed in the framework for moving the platen between first, second and third positions, said first position being an intermediate position, said second position being a position overlying the opening in the dip tank and the third position being a position underlying the opening in the dry tank.

8. Apparatus as in Claim 7 wherein said means for supporting the platen includes means for moving the platen

through 180°.

9. Apparatus as in Claim 4 further including means disposed in the dry chamber and engaging the second mating mold in the drying chamber for moving the second mating mold into engagement with the first mating mold carried by the platen when the platen is in the third position and means supplying a vacuum to the second mating mold to cause the wet molded pulp product to be transferred from the first mating mold to the second mating mold.

10. Apparatus as in Claim 9 further including means for moving the second mating mold with the wet molded pulp product thereon into the dry tank and wherein said means for covering the opening in the dry tank to form an air-tight seal for the dry tank includes a closure platen, including means for controlling the movement of the closure platen into and out of engagement with the opening in the dry tank.

11. Apparatus as in Claim 10 further including means for forming an air-tight seal between the drying tank and the closure platen when the closure platen has been moved to the closed position.

12. Apparatus as in Claim 11 further including means for venting the heated air.

13. Apparatus as in Claim 4 wherein the molded platen is constructed to carry a plurality of first mating molds and wherein a plurality of second mating molds are provided which are capable of being disposed in the drying chamber and wherein said means for causing relative movement between the first mating mold and the second mating mold includes means for causing relative movement of said plurality of

first and said plurality of second mating molds which is capable of accommodating first and second mating molds of different sizes and configurations.

14. A method for producing molded pulp products from  
5 a fiber slurry having a liquid level with the use of a porous mold carried by a platen comprising introducing the mold downwardly with the platen being disposed upwardly of the mold into the fiber slurry through the liquid level of the fiber slurry so that the mold is immersed in the fiber  
10 slurry, supplying a vacuum to the mold to cause fibers from the fiber slurry to collect on the mold to form a wet molded pulp product, withdrawing the mold from the fiber slurry through the liquid level of the fiber slurry, permitting water to drain from the mold and the wet molded pulp product  
15 and drying the molded pulp product so that it is self-supporting, and separating the molded product from the mold.

15. A method as in Claim 14 wherein after the mold is withdrawn from the fiber slurry, the mold is inverted so that the platen underlies the mold to facilitate drainage of  
20 water from the mold and the wet molded pulp product.

16. A method as in Claim 14 wherein after the mold and the wet molded product has been withdrawn from the fiber slurry, a vacuum is supplied to the mold to facilitate the removal of water from the mold and the molded pulp product.

25 17. A method as in Claim 16 wherein the water withdrawn from the mold and the molded product is collected for recycling.

18. A method as in Claim 16 wherein any remaining moisture withdrawn from the mold and the molded pulp product

is vented to atmosphere after the lapse of a predetermined time.

19. A method as in Claim 14 wherein said mold is a first mating mold and wherein there is provided a second mating mold for mating with the first mold, the method further comprising the steps of advancing the first mold after it has been withdrawn from the fiber slurry into engagement with the second mold to mate with the second mold.

20. A method as in Claim 19 for use with a dry chamber and wherein the second mold is disposed in the dry chamber, the method further comprising causing the first mold to mate with the second mold in the dry chamber to cause the wet molded pulp product to receive impressions from both the first and second molds, transferring the wet molded pulp product from the first mold to the second mold, withdrawing the first mold from the dry chamber, closing the dry chamber so that it is air tight and supplying heated air to the dry chamber to cause drying of the wet molded pulp product carried by the second mold.

21. A method as in Claim 20 wherein the heated air can only pass from the dry chamber after passing through the molded product.

22. A method as in Claim 14 wherein the mold is introduced through the liquid level of the fiber slurry without immersing the platen into the fiber slurry.

23. A method as in Claim 20 further including the step of opening the dry chamber and separating the dry molded product from the second mold in the dry chamber and

removing the separated dried molded pulp product.

24. A method as in Claim 20 wherein during the time that the wet molded pulp product is being dried in the dry chamber on the second mold, the first mold is being moved to  
5 be reintroduced into the fiber slurry to cause another wet molded pulp product to be formed on the first mold to thereby expedite the production of molded product.

*Producing even fibers*  
25. A molded fiber product formed from a fiber slurry by the use of first and second mating molds having mold surfaces and comprising a body which is sufficiently rigid so it is self-supporting, said body being formed essentially of molded fibers and providing a wall having first and second exposed surfaces, said first and second exposed surfaces having impressions corresponding to the mold  
10 surfaces of the first and second mating molds.  
15

26. A product as in Claim 25 wherein said wall has a precise thickness.

27. A product as in Claim 25 wherein said wall has a predetermined taper facilitating nesting and de-nesting of  
20 the product.